To: Albright, David[Albright.David@epa.gov]; Rumrill, Nancy[Rumrill.Nancy@epa.gov]
Cc: Stephen Twyerould[stwyerould@excelsiormining.com]; Alison Jones (ajones@clearcreekassociates.com)[ajones@clearcreekassociates.com]; Doug Bartlett[dbartlett@clearcreekassociates.com]
From: Rebecca Sawyer
Sent: Fri 12/1/2017 10:28:11 PM
Subject: Gunnison Draft UIC

David;

Excelsior is requesting a meeting with the permitting and technical team for the Gunnison UIC to discuss the following points:

Comments on Part II.E.6:

•□□□□□□□□ Excelsior agrees to an MCL limit for BTEX in the lixiviate, sampled monthly and averaged quarterly. We need clarification on the purpose of the proposed TPH-DRO limit.

Suggested revisions for Part II.F.1—Monitoring Program

•□□□□□□□□ Excelsior agrees to implement the draft permit's requirement to install 3 HC (Hydraulic Control) wells at the southern boundary prior to Year 1.

•□□□□□□□□ The most vulnerable pathway for eastward migration of any excursion from mining block 1 is in an east-west trending zone between the Patagonia and Atacama faults. Most other faults are oriented northwest-southeast. Excelsior's proposed year 1 HC wells along the eastern wellfield boundary include HC-15, HC-17, and HC-18 which are centered around the Atacama Fault. These wells will maintain an inward hydraulic

gradient to assure that excursions that find the Atacama Fault pathway will be intercepted.

•□□□□□□□ As a proposed alternative to the installation of three additional OW (observation well) pairs on the eastern boundary (OW-10, OW-13, and OW-19), in the draft UIC, Excelsior recommends that the associated HC wells (HC-10, HC-13, and HC-19) be installed (in addition to operating [pumping] HC wells HC-15, HC-17, and HC-18). Monitoring of HC-10, HC-13, and HC-19, in conjunction with monitoring of IMWs (Intermediate Monitoring Wells), will provide an early warning of approaching mine impacted water. If such a condition occurs, contingency responses can be implemented immediately.

•□□□□□□□ HC-10, HC-13, and HC-19 will be monitored similar to HC wells along the southern boundary. Pumping can be initiated at these HC wells if SC (specific containment) monitoring in outer IMWs and/or these HC wells indicates approaching mine-impacted solutions. Associated OWs will be installed when this condition occurs and is verified. This change to the draft permit will allow (1) a consistent approach to monitoring containment at the southern and eastern boundaries of the wellfield, and (2) will allow an immediate response (pumping of HC wells) in the event of Alert status.

•□□□□□□□ Excelsior can provide draft language for this section to EPA that includes these suggested revisions.

Other requested revisions

•□□□□□□□ **Part II.E.3.a.ii. (A):** Casing and cementing records are not generally available for existing test wells and coreholes that will be converted to monitoring wells (IMWs). However, these wells and coreholes will be plugged and abandoned in compliance with Arizona laws and regulations prior to beginning the operation of the mining block in which they are located. They should be treated like any other existing corehole/borehole, as described in Part II, C.10.

•□□□□□□□ Table A-1 in Appendix A has been revised to reflect a slight location change of Block 1. The revised Table A-1 is attached.

•□□□□□□□ Footnotes at end of Tables 1 and 2 say: “TBD – To be determined and approved by the director for the five (5) POC wells and the eleven (11) outer observation wells required by EPA prior to the commencement of injection.” This

footnote is not consistent with the schedule of POC and OW installation. POCs 1, 2, and 3 will be installed prior to Year 1, but POCs 4 and 5 will not be installed until prior to Stage 2 operations (year 10). OWs will be phased in during the course of the project, as shown on the table below, which was prepared in response to a comment by ADEQ. (Please note that the table below lists 10 POC wells, but only 5 are for the wellfield; the other 5 are for ADEQ-regulated impoundments).

Gunnison Project Well Installation Schedule

Stage	Year	Injection and Recovery Wells	Existing Monitor Wells	Hydraulic Control Wells	Point of Compliance Wells	Observation Wells
1	1	38	30	3	3	2
1	2	20	0	2	0	2
1	3	20	0	0	0	0
1	4	17	0	1	0	2
1	5	21	0	3	0	0
1	6	16	0	2	0	2
1	7	18	0	8	0	6
1	8	20	0	0	0	0
1	9	14	0	0	0	0
1	10	16	0	0	0	0
2	-	203	0	0	7	0
3	-	1004	0	11	0	8
Total		1407	30	30	10	22

Excelsior recommends the following revised language: “TBD – To be determined and approved by the director for the POC wells and observation wells required by EPA according to the installation schedules for these wells.”

•□□□□□□□ **Part II.F.3.a:** Requires baseline water quality from all POC and outer OWs prior to commencement of injection. As noted in the comment above, OWs will be phased in during the course of mining. POCs 4 and 5 will not be installed until Stage 2 mining. Excelsior recommends the following revised language: “TBD – To be determined and approved by the director for the POC wells and observation wells required by EPA according to the installation schedules for these wells.”

•□□□□□□□ **Part II.F.4:** says that the five POCs and 11 outer OWs will be monitored for the 23 year mining period and 5 year post-rinsing monitoring period. As noted above, this is not possible. OWs will be phased in during the course of mining and POCs 4 and 5 will not be installed until Stage 2. Excelsior recommends the following revised language: "TBD – To be determined and approved by the director for the POC wells and observation wells required by EPA according to the installation schedules for these wells."

•□□□□□□□ **Part II.G.2.c:** the verbiage seems to imply that there will always be 11 pairs of OWs. This is not the case. The OWs will be phased in, as noted in the APP, tables 2.5-2 and 2.5-3 and as discussed above.

•□□□□□□□ **Part II.H.1.i:** add "HC wells" to the text. HC pumping volume can also be adjusted to maintain the 101% extraction volume.

•□□□□□□□ **Part II.F.6.a.i:** should require SC measurements in the IMWs and OUTER OWs (not HC wells). HC wells will be monitored for SC as an operational activity, but they are EXPECTED to have elevated SC as mining approaches the edges of the wellfield. This text should be consistent with Part II.E.I.c.

These topics were all part of the ongoing discussions during permit development, that require further clarification in the Draft UIC. We are available next week to have a phone conference. Please provide dates and times that work for you.

Thank you,

Rebecca A. Sawyer

Vice President, Sustainability

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